# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/850,124 | 05/07/2001 | Krishna Balachandran | 21-1-3-12 | 1172 |

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| EXAMINER |
|---|
| ZHENG, EVA Y |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2634 | |

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 August 2004*.

2a)☒ This action is **FINAL**.       2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☐ Claim(s) _____ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-10,12-14 and 24-26* is/are allowed.

6)☒ Claim(s) *1,3,5,6,15-17,19,21 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some *   c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1.      Applicant's arguments with respect to claims 1, 3, 5, 6, 8-10, 12-17, 19, 21, 22

and 24-26 have been considered but are moot in view of the new ground(s) of rejection

because of amendment.

### *Claim Objections*

2.      Claims 1, 4, 5, 6, 8, 9, 10, 14, 17, 21, 22 and 24-26 are objected to because of

the following informalities: parameters: "N and F" are not defined.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3.      The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.      Claims 1, 3, 15-17 and 19 are rejected under 35 U.S.C. 102(b) as being

anticipated by Munday et al. (US 5,377,221).

a)      Regarding claim 1, Munday et al. disclose a method for use in wireless

equipment, the method comprising the steps of:

        transmitting signals using frequency hopping over a time period T (2A and 2B),

by

        pseudo randomly selecting a frequency from a set of N frequencies such that

over at least a portion of the time period T, the frequency selection is constrained to less

than the N frequencies (Col 2, L64-67).

b)      Regarding claim 3, Munday et al. disclose a method for use in wireless

equipment, the method comprising the steps of:

        Storing a set of hopping frequencies (74 in Fig. 1; Col 6, L52-59); and

        pseudo randomly selecting frequencies from the set of hopping frequencies over

a time period T by limiting the available frequencies from the hopping set over at least a

portion of the time period T (Fig. 2A and 2B; Col 2, L64-67) .

c)      Regarding claim 17, Munday et al. disclose a wireless endpoint comprising:

        a transmitter for transmitting signals using frequency hopping over a time period

T (2A and 2B; Col 2, L64-67); and

        a processor for pseudo randomly selecting a frequency from a set of N

frequencies such that over at least a portion of the time period T, the frequency

selection is constrained to less than the N frequencies (26 in Fig. 1; Col 3, L61- Col 4,

L15).

d)      Regarding claim 15, Munday et al. disclose a pseudorandom frequency hopping

method for use in wireless equipment, the method comprising the steps of:

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dividing a hopping set into an allowable frequency set and a probhibited
frequency set (Col 2, L64 - Col 3, L17); and

transmitting information associated with the division of the hopping set to another
wireless endpoint (Col 2, L64 - Col 3, L17).

e)      Regarding claim 16, Munday et al. disclose the method of claim 15 wherein the
transmitted information enables the other wireless endpoint to derive the allowable
frequency set (other wireless endpoint inherent as receiver; Col 2, L64 - Col 3, L17).

f)      Regarding claim 19, Monday et al. disclose a wireless endpoint comprising:

a memory for storing a set of hopping frequencies (74 in Fig. 1; Col 6, L52-59);
and

a processor for pseudo randomly selecting frequencies from the set of hopping
frequencies over a time period T by limiting the available frequencies from the hopping
over at least a portion of the time period T (26 in Fig. 1; Col 3, L61- Col 4, L15).

5.      Claims 1, 5, 6, 21 and 22 are rejected under 35 U.S.C. 102(e) as being
anticipated by Haartsen (US 6,345,066 B1).

a)      Regarding claim 1, Haartsen discloses a method for use in wireless equipment,
the method comprising the steps of:

transmitting signals using frequency hopping over a time period T (Fig. 1), by

pseudo randomly selecting a frequency from a set of N frequencies such that
over at least a portion of the time period T, the frequency selection is constrained to less
than the N frequencies (Fig. 2; Col 4, L 25-47).

b)      Regarding claim 5, Haartsen discloses a method of frequency hopping for use in
wireless equipment, the method comprising the steps of:

initializing a hopping set to a size of F frequencies, the hopping set used to
pseudo randomly select therefrom hopping frequencies over a time period T (Col 4,
L25-47); and

reducing the size of the hopping set over a portion of the timer period T by at
least one frequency (Fig. 3; Col 5, L6-23).

c)      Regarding claim 6, Haartsen discloses a method of frequency hopping for use in
wireless equipment, the method comprising the steps of:

initializing a hopping set to a size of N frequencies, the hopping set used to
select therefrom hopping frequencies over a time period T (Col 4, L25-47); and

pseudo randomly selecting frequencies from the hopping set (inherent as
reduced set of frequencies) over the time period T such that at least one of the selected
frequencies is prohibited from susbsequent selection in at least a portion of the time
period T (Col 6, L31-57).

d)      Regarding claim 21, Haartsen discloses a wireless endpoint comprising:

a memory for storing a hopping set comprising F frequencies (inherent as control
502 in Fig. 2), the hopping set used to pseudo randomly select therefrom hopping
frequencies over a time period T (Col 4, L 25-47); and

a processor for reducing the size of the hopping set over a portion of the timer
period T by at least one frequency (Fig. 3; Col 5, L6-23).

e)      Regarding claim 22, Haartsen discloses a wireless endpoint comprising:

a memory for storing a hopping set comprising N frequencies (inherent as control 502 in Fig. 2), the hopping set used to select therefrom hopping frequencies over a time period T (Col 4, L 25-47); and

a processor for pseudo randomly selecting frequencies from the hopping set (inherent as reduced set of frequencies) over the time period T such that at least one of the selected frequencies is prohibited from susbsequent selection in at least a portion of the time period T (Col 6, L31-57).

### *Allowable Subject Matter*

6.    Claims 8-10, 12-14 and 24-26 are allowed.

7.    The following is an examiner's statement of reasons for allowance:

None of the prior art teaches or suggests a frequency hopping method in a wireless system, a hopping set initialized to a size of N frequencies, and the hopping set used to select therefrom hopping frequencies over a time period of T, comprising the steps of: determining a hopping index value; modifying the hopping index value by at least the modulo of a number F, where F is less or equal to N; pseudo randomly selecting a hopping frequency from the hopping set of a function of the modified hopping index value; adjusting the order of the hopping set such that the selected hopping frequency is now at a position corresponding to the value F; reducing the value of F; and returning to the determining a hopping index value. .

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


## *Conclusion*

8.      Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9.      Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
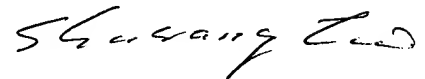
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal

Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the Technology Center 2600 Customer Service Office

whose telephone number is (703) 306-0377.

                                              Eva Yi Zheng
                                              Examiner
                                              Art Unit 2634

January 3, 2005

                                              SHUWANG LIU
                                              PRIMARY EXAMINER